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**AMENDMENT**

**IN THE DRAWING**

About the drawing, we have amended the specification, where the reference character 2 is only used to indicate legs.

The reference character 27' is amended as 27 which is illustrated in the drawings.

We renamed "5" as first water-proof kraft paper protecting envelope 5. "5" " as second water-proof kraft paper protecting envelope 5". " 5" " as third water-proof kraft paper protecting envelope 5".

Thereby no drawing is amended.

## **REMARKS**

Very thanks for Examination's suggestion and thanks for finding some citations about the present invention, thereby, the applicant may know more information about the invention. This case has been carefully reviewed and analyzed in view of the office action. All details of the reference prior arts are fully considered and compared with the present invention.

Responsive to the objections and rejections made of the Examiner in office action. We have amended the specification, claims and abstracts. All the errors disclosed in that office action has been corrected according to the Examiner's indications disclosed in the official action.

Indeed the citations disclose some features of the present invention, and the applicant agrees with these viewpoints, however applicant discovers that some main features of the present invention is not disclosed in the citation which can form the novelty and inventive step of the present invention.

Firstly, applicant decides to amend the present invention, which firstly amends some errors pointed out by the Examiner in the Office action, and secondly, the amendments can more illustrate the novelty of the present invention. The applicant decides to cancel Claims 1 to 4, without prejudice or disclaimer of the subject matter thereof, and add new claims 5 to 7. The added new claim 5 is based on the original claim 1 and 2 and the feature in the Fig. 4. The new claim 6 add features same as the original claim 4 to the new claims 5. The added new claim 7 is based on the original claim 1 and 3 and the feature in the Figs. 5 and 6. Thus no new matter is added. The relation of the new claims with respect to the original claims are shown in the following.

## **CLAIMS SHOW CHANGES FROM THE ORIGINAL CLAIMS AND NUMERALS AS A REFERENCE IN THE REMARK**

Claims 1 -4 (Cancelled)

Claim 5. (New) ~~1.~~ An environmental protection water-proof safety honeycomb stacking cardboard; the honeycomb stacking cardboard ~~being formed by~~ comprising:

a flat plate 1;

a plurality of legs 2 below the flat plate; each leg being a long post-like structure formed by at least one upper leg 21 and a lower leg 22 located below the upper legs 21; wherein the flat plate, upper leg and lower leg being made by a plurality of honeycomb plates;

a plurality of waterproof top plates 12, 24 processed by proof water-proof procedure and gluing procedure being adhered on an upper side sides of the flat plate; and each upper side of the upper legs 21 and lower legs 22; and

a plurality of waterproof bottom plates 13, 25 processed by water-proof procedure and gluing procedure and being adhered on an lower side sides of the flat plate, each lower side of the upper legs 21, and each of the lower legs 22; and legs; characterized in that:

wherein each leg is a long post and includes an upper leg and a lower leg; a periphery of the flat plate adjacent to the top plate 12 is covered by a water-proof kraft paper edge protecting cover 4; each protection cover 4 with each side having an L shape cross section with one side of the L shape covering upon the top plate and the other part of the L shape covering upon a lateral side of the honeycomb plate; the exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope 5; wherein each envelop is an approximate U shape cross section so as to enclose three sides of each leg.

~~2. The environmental protection water-proof safety honeycomb stacking cardboard as claimed in claim 1, wherein each leg is~~

~~formed by an upper leg, a lower leg and a kraft paper protecting envelope; the legs are arranged with an equal space in one dimension so as to be formed with a plurality of grooves which are arranged longitudinally.~~

Claim 6. (New) 4- The environmental protection water-proof safety honeycomb stacking cardboard as claimed in claim 2 ~~4~~, wherein each leg has three upper legs and one lower leg; the three upper legs are arranged above the lower leg; is formed by three block upper legs, a long lower leg and a kraft paper protecting envelope so as to be formed as a leg with two slots; the legs are arranged with an equal distance; ~~thereby, a plurality of longitudinal grooves and transversal slots are formed~~

Claim 7. (New) 3- An environmental protection water-proof safety honeycomb stacking cardboard; the honeycomb stacking cardboard comprising:

a flat plate 1;

a plurality of legs 2 below the flat plate; each leg being a long post-like structure formed by at least one upper leg 21 and a lower leg 22 located below the upper legs 21; wherein the flat plate, upper leg and lower leg being made by a plurality of honeycomb plates;

a plurality of waterproof top plates 12, 24 adhered on an upper side of the flat plate; and each upper side of the upper legs 21 and lower legs 22; and

a plurality of waterproof bottom plates 13, 25 adhered on an lower side of the flat plate, each lower side of the upper legs 21, and each of the lower legs 22;

wherein a periphery of the flat plate adjacent to the top plate 12 is covered by a water-proof kraft paper edge protecting cover 4;

each protection cover 4 having an L shape cross section with one side of the L shape covering upon the top plate and the other part of the L shape covering upon a lateral side of the honeycomb plate; the exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope 5; wherein each envelop is an approximate U shape cross section so as to enclose three sides of each leg; and

wherein the legs are arranged with an equal space in two dimensions; and each leg has a rectangular cross section.

## DISCUSSION ABOUT THE NOVELTY OF THE PRESENT INVENTION

(A) To easily understand the claims of the present invention, it should be noted that:

The new claim 5 claims the feature illustrated in Fig. 4 of the present invention.

The new claim 6 claims the features illustrated in Fig. 7 and 8 of the present invention.

Fig. new claim 7 claims the features illustrated in Fig. 5 and 6 of the present invention.

(B) In the new claim 5 and 7 of the present invention, it is stated that:

a periphery of the flat plate adjacent to the top plate 12 is covered by a water-proof kraft paper edge protecting cover 4; each protection cover 4 with each side having an L shape cross section with one side of the L shape covering upon the top plate and the other part of the L shape covering upon a lateral side of the honeycomb plate; the exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope.

About description clearly defines the element 4 in Figs. 6, 7, and 8 of the present invention.

As referring to USP5537937, it is illustrated that the element 702 is like above described element 4 in the present invention, but in this citation '937, the top plate 706 is not covered by the element 702. However in the present invention, "one side of the L shape covering upon the top plate".

In citation USP5,213,050, referring to Figs. 1A and 2B, the plates 114 and 202 are integrated plates which are not similar to the present invention.

The citation USP2002/0189507 can not find any similar structure like the element 4 and the top plate of the present invention.

In citation USP5,230,291, referring to Figs. 1A and 2B of the citation, the plate 206 is an integrated plates which are not similar to the present invention. In the present invention, the upper side of the flat plate 1 is a top plate 12 and then the protecting cover 4 covers upon the top plate 1 and the lateral sides of the flat plate 1. Thus the citation '291 is different from the present invention.

From above discussion, it is known that all the citations have no feature of the element 4 in claims 5 and 7 of the present invention.

(C) Moreover, in the new claims 5 and 7:

"a plurality of waterproof top plates 12, 24 on upper sides of the flat plate; the upper legs 21 and lower legs 22;

a plurality of waterproof bottom plates 13, 25 lining on lower sides of the flat plate; the upper legs 21 and lower legs 22;

the exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope wherein each envelope is an approximate U-shape cross section so as to enclose three sides of each leg;

These feature is illustrated in Fig. 4, 5, and 6 of the present invention. The related elements are 12, 13, 24, 25 and 5 as illustrated in Figs. 4, 5 and 6.

No corresponding structure is formed in citation USP '507. No top plate and bottom plate is found at this citation.

Referring to Fig. 1A, it is illustrated that each leg is enclosed by a plate 110 and a plurality of plates 104, 106 and 108. The enclosing way for the legs are different from the present invention. In the present invention, the top plates 24, bottom plate 25, and U shape envelop 5 are used to enclose leg 2.

Referring to Fig. 7 of the citation 937, it is illustrated that each leg is enclosed by a plate 204 and a continuous folded plate 208. The enclosing way for the legs are different from the present invention. In the present invention, the top plates 24, bottom plate 25, and U shape envelop 5 are used to enclose leg 2. Furthermore, the citation '937 has no bottom plate (as the 13, 25 in the present invention). The folded plate 208 are used to enclose the bottoms of all legs and the bottom of plate 200. Thereby structure of the present invention is completely different from the citation '937.

In the citation '291, the bottom plate 202 is a whole structure which enclose both the flat plate 100 and the legs 104. Thus its structure is different from the present invention.

(D) The new claim 5 claims the features in Fig. 4, in that ~~the legs are arranged with an equal space in one dimension~~. In above discussion of (1) and (2), it is known that all the citations have no the features of the element 4 of the present invention and the elements 12, 13, 24, 25 of the present invention. Thereby it is known that the claim 5 is novel over all the citations.

(E) The new claim 6 claims the features of Figs. 7 and 8 of the present invention, in that ~~each leg has three upper legs and one lower leg, the three upper legs are arranged above the lower leg so as to be formed as a leg with two slots, the legs are arranged with an equal distance~~.

However no citation has the arrangement of legs as that disclosed in Figs. 6 and 7 of the present invention. Moreover, In above discussion of (1) and (2), it is known that all the citations have no the features of the element 4 of the present invention and the elements 12, 13, 24, 25 of the present invention. Thereby it is known that the claim 5 is novel over all the citations.

(F) The new claim 7 claims the features of Figs. 5 and 6 of the present invention, in that ~~"the legs are arranged with an equal space in two dimensions, and each leg has a rectangular cross section."~~

The citation '507 has the arrangement of legs as that disclosed in Figs. 6 and 7 of the present invention, but each leg of the citation has an integral structure, namely, no upper leg and lower leg as in the present invention. Moreover, In above discussion of (1) and (2), it is known that all the citations have no the features of the element 4 of the present invention and the elements 12, 13, 24, 25 of the present invention. Thereby it is known that the claim 5 is novel over all the citations.

#### **(G) RESULT**

Since in above discussion, it is apparent that no prior art has the features of the present invention, especially in new claims 5 and 7. Furthermore, as we know that no other prior art has features of the present invention. Thus, the present invention is novel and inventive.

Applicant requests and authorizes Examiner to amend the claims of the present invention so that the claim can match the requirement of U. S. Patent. Attentions of Examiner to this matter is greatly appreciated.

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectively requested.



Respectfully submitted.

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## **"MARK-UP" COPY OF THE AMENDED SPECIFICATION**

### **ENVIRONMENTAL PROTECTION WATER-PROOF SAFETY HONEYCOMB STACKING CARDBOARD**

The present invention is a continuation in part (CIP) of U. S. Patent Series no. 09/733,341, and thus the contents of U. S Patent Series No. 09/733,341 is incorporated into the present invention as a part of the present invention.

#### **Field of the Invention**

The present invention relates to stacking cardboards, and particularly to an environmental protection water-proof safety honeycomb stacking cardboard,

#### **Background of the Invention**

Stacking cardboards are used to replace the stacking wood boards due to environment and cost consideration. Moreover, the staking cardboards can suffer objects of even 3 tons of each meter square and the weight of stacking cardboard is only one third of that of wood cardboard. The stacking cardboard can be reused and is light so as to reduce the burden of lifting machines.

Currently, corrugated stacking cardboards and honeycomb stacking cardboards are used. Although these two kinds of stacking cardboards have some advantages, they are insufficient in water and pressure - proof.

Referring to Fig. 1A, a stacking cardboard is made of honeycomb cardboard 2 and reused papers 3 and 4 adhered on the top and bottom of the

cardboard 2. The bottom is formed with a plurality of transversal and longitudinal slots and then is adhered with a layer of reused paper 40. The disadvantages of this prior art is that:

1. The edges of the stacking cardboards have weak structures (since indication by the arrow in Fig. 1B). when the cardboards are collided by external forces. The edge has a worse tolerance so as to be damaged easily.

2. The grooves at the lower side of the honeycomb stacking cardboard 2 have insufficient strength. Moreover, the honeycomb stacking cardboard 2 are formed with legs so as to have a worse pressure - tolerance ability.

3. When reused paper 40 is adhered to a bottom of the honeycomb stacking cardboard 2, since the legs 2 are arranged longitudinally and transversally, the operation is difficult. Moreover, mold is necessary to apply pressure thereon so that cost in mold is high.

4. If no reused paper 40 is used, the effects in wet and water -proofs are poor so as that the legs are easy to collapse and deform. Moreover, if heavy burdens are applied thereon, these effects will become apparent.

### Summary of the Invention

Accordingly, the primary object of the present invention is to provide an environmental protection water-proof safety honeycomb stacking cardboard. The honeycomb stacking cardboard is formed by a flat plate and a plurality of legs below the flat plate. The flat plate, upper leg and lower leg are made of by a plurality of honeycomb plates. Waterproof top Top plates processed ~~by water proof procedure and gluing procedure~~ are adhered on upper sides of the flat plate and lower legs; and waterproof bottom plates processed ~~by water proof procedure and gluing procedure~~ and being adhered on lower sides of the flat plate and legs. Each leg is a long post and includes an upper leg and a lower leg. A periphery of the flat plate are

covered by a water-proof kraft paper edge protecting cover with each side having an L shape. The exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope.

The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing.

### **Brief Description of the Drawings**

Fig. 1A is a cross sectional view of a prior art honeycomb stacking cardboard.

Fig. 1B is a schematic view showing the prior art honeycomb stacking cardboard which is collided or wetted.

Fig. 2 is a perspective view of the honeycomb stacking cardboard of the present invention.

Fig. 3 is a cross sectional view of the honeycomb stacking cardboard of Fig. 2.

Fig. 4 is an exploded perspective view of the honeycomb stacking cardboard of Fig. 2.

Fig. 5 is a structure perspective view of another embodiment of the honeycomb stacking cardboard according to the present invention.

Fig. 6 is an exploded perspective view of the honeycomb stacking cardboard of the present invention.

Fig. 7 is a structural perspective view of the honeycomb stacking cardboard in another embodiment of the present invention.

Fig. 8 is an exploded perspective view of the honeycomb stacking cardboard according to the present invention.

### Detailed Description of the Preferred Embodiments

Referring to Figs. 2, the honeycomb stacking cardboard of the present invention is illustrated. The cross sectional view of the honeycomb stacking cardboard of the present invention is illustrated in Fig. 3. The exploded perspective view of the present invention is shown in Fig. 4. In the present invention, the honeycomb stacking cardboard 10 comprises ~~is formed by~~ a flat plate 1 and a plurality of legs 2 below the flat plate 1. Each leg 2 is a long post and includes at least one ~~an~~ upper leg 21 and a lower leg 22 below the upper leg. A periphery of the flat plate 1 is covered by a water-proof kraft paper edge protecting cover 4 (each side having an L shape). Each protection cover 4 has an L shape cross section with one side of the L shape covering upon the top plate and the other part of the L shape covering upon a lateral side of the honeycomb plate. The exposed outside of each leg 2 is enclosed with ~~by~~ a first water-proof kraft paper protecting envelope 5. The cover 4 and first envelope 5 are made by sticking a plurality of sandpaper of 500 g/ m<sup>2</sup> to a width of 3mm.

The above said flat plate 1, upper leg 21 and lower leg 22 are made of ~~by~~ a plurality of honeycomb plates 11 and 23, paper top plates 12, 24 processed by water-proof procedure and gluing procedure and being adhered to paper bottom plates 13, 25 below the honeycomb plates. The top plates and bottom plates is formed of ~~by~~ one kraft paper of 300 g/ m<sup>2</sup>, which is a preferred tolerance and anti-tension ability.

The honeycomb plates 11 and 23 can be performed with fire-proof process and then processed by using a special honeycomb forming machine and a tension machine. The top and bottom plates are kraits of water-proof or fire-proof and then are adhered to the honeycomb plates by gluing.

Referring to Fig. 3 when the flat plate 1 is combined with the upper leg 21 and lower leg 22 so as to form a combined structure of three layers which

has a concrete structure of weight tolerable. The periphery of the flat plate 1 are covered kraft paper protecting cover 4 so that it has a preferred anti-wearing, and anti-collision ability. The kraft paper protecting envelopes 4 enclosing the upper legs 21 and lower legs 22 have the functions of wet-proof, and water-proof.

The lower legs 22 are arranged with an equal distance. A groove is formed between every two legs 2. Thereby, the supporting arms of a lifting machine can lift the honeycomb stacking cardboard 10 from the grooves 26.

Fig. 5 is another embodiment of the honeycomb stacking cardboard 10 of the present invention. The difference of this embodiment to the former ones is that each leg 2' has a block form and comprise is formed by a block upper leg 21' and a block lower leg 22' and then adhering with a second kraft paper protecting envelop 5'. Then the ~~block~~ legs 2 2 are arranged in parallel so as to formed grooves 26' and 27 27' which longitudinal and transversal arranged. Thereby, supporting arms of a lifting machines can be inserted into the grooves from any sides of the honeycomb stacking cardboard.

Fig. 7 shows another embodiment of the honeycomb stacking cardboard of the present invention. It is shows that each leg 2" has at least two transversal slots 28. The way for forming the leg 2" is illustrated in Fig. 8. Each leg 2" ~~comprise is formed by~~ three block upper legs 21', a long lower leg 22 and a third kraft paper protecting envelope 5" so as to formed a leg 2" with two slots 28. The legs 2 2 are arranged with an equal distance. Thereby, a plurality of longitudinal grooves 26 and transversal slots 28 are formed so that the supporting arms are inserted into the grooves 28 and slots 26.

The present invention is thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a

departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.

## ABSTRACT

An environmental protection water-proof safety honeycomb stacking cardboard is proposed. The honeycomb stacking cardboard is formed by a flat plate and a plurality of legs below the flat plate. The flat plate, upper leg and lower leg are made by a plurality of honeycomb plates. Top plates processed by water-proof procedure and gluing procedure are adhered on upper sides of the flat plate and lower legs; and bottom plates processed by water-proof procedure and gluing procedure and being adhered on lower sides of the flat plate and legs. Each leg is a long post and includes an upper leg and a lower leg. A periphery of the flat plate are covered by a water-proof kraft paper edge protecting cover with each side having an L shape. The exposed outside of each leg is enclosed by a water-proof kraft paper protecting envelope.